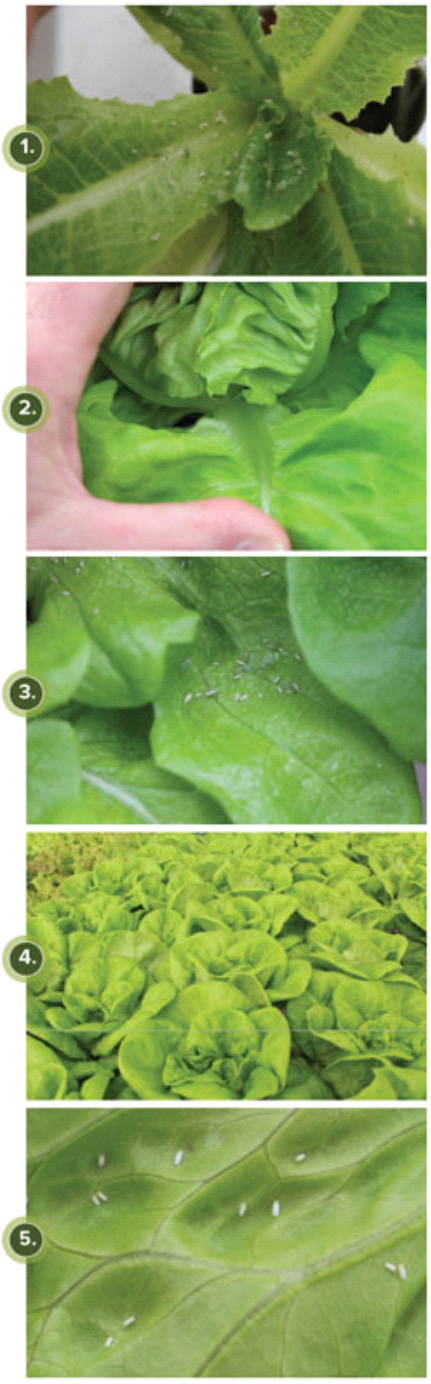
insideGROWER

PEST MANAGEMENT

10/30/2026

Getting Ahead of Aphids

Dr. Raymond A. Cloyd



Aphids are insect pests of many vegetable and ornamental crops grown in greenhouse production systems. Managing aphid infestations in hydroponically grown lettuce can be a challenge for producers because of the high cosmetic standards associated with lettuce, which may result in low numbers of aphids (e.g. 10 to 20 aphids per plant), rendering a lettuce crop unmarketable. There are three species of aphids that feed on hydroponically grown lettuce: the green peach aphid, *Myzus persicae*; the potato aphid, *Macrosiphum euphorbiae*; and the lettuce aphid, *Nasonovia ribisnigri*.

Figure 1. Aphids feeding on new young leaves of a lettuce plant.
Figure 2. Base or stem of a lettuce plant where aphids feed.
Figure 3. Aphids and white molted skins on a lettuce leaf.
Figure 4. Lettuce plants growing close together create a dense canopy of foliage that protects aphids from insecticides.
Figure 5. Whitefly adults feeding on the underside of a lettuce leaf.

Aphids in greenhouses are all females, which produce four to eight live nymphs per day that are also females. Nymphs mature into wingless adult females and produce nymphs for the next generation. Aphid populations can increase rapidly with hundreds of aphids infesting a lettuce plant. When lettuce plants are heavily infested with aphid nymphs (>100 per plant), the nymphs will develop into winged females that can initiate a new infestation by moving onto non-infested lettuce plants.

Aphids feed on young lettuce leaves (Figure 1), the underside of lettuce leaves and on leaves near the base or stem of lettuce plants (Figure 2). They use their piercing-sucking mouthparts to withdraw plant fluids. During feeding, aphids produce honeydew, which is a clear, sticky liquid that serves as a growing substrate for black sooty mold. In addition, white molted skins may be present on plant leaves (Figure 3).

So what can a producer do? To mitigate problems with aphids, scout regularly (at least once per week) during the growing season by visually inspecting leaf undersides and the base or stem of lettuce plants to detect aphid populations early. If aphid populations have reached extensive numbers (>100 per plant), and molted skins and black sooty mold are present, then the only option is to immediately dispose of and remove plants from the greenhouse. Removing heavily infested lettuce plants, starting with a clean, new crop and scouting regularly helped a producer in Kansas minimize problems with aphids, which led to the production of a quality lettuce crop.

In addition, lettuce plants with low numbers of aphids can be thoroughly washed with water to remove the aphids. Lettuce plants can also be soaked in water for 15 minutes and then processed through a salad spinner to obtain clean lettuce plants.

Insecticides are generally not a practical option to maintain aphid populations below plant-damaging levels

because of the difficulty in obtaining thorough coverage of plant parts, especially leaf undersides and base or stem, where aphids are located. Moreover, mature lettuce plants that are growing close together (Figure 4) create a dense canopy of foliage that protects aphids or reduces their exposure to insecticide spray applications, thus decreasing the effectiveness of any application. Furthermore, since lettuce leaves are sold for consumption, any residues on the leaves associated with insecticide applications may reduce the marketability of lettuce plants.

Biological control may not be an option because the short growing cycle (approximately six weeks from seeding to harvest) of a lettuce crop may not allow biological control agents, such as parasitoids and predators to establish and maintain aphid populations below plant-damaging levels. Moreover, aphids can reduce exposure and accessibility to biological control agents when feeding at the base or stem of lettuce plants. Like insecticides, the dense canopy of foliage associated with mature lettuce plants growing close together protects aphids from exposure to biological control agents.

In addition to aphids, whiteflies will feed on hydroponically grown lettuce. The two whitefly species that feed on lettuce grown in hydroponic systems are the greenhouse whitefly, *Trialeurodes vaporariorum*, and sweet potato whitefly, *Bemisia tabaci*. Whiteflies are located on the underside of leaves (Figure 5) and feed like aphids using their piercing-sucking mouthparts to withdraw plant fluids. Whiteflies also produce honeydew, which may result in the presence of black sooty mold on leaves.

In conclusion, producers that grow lettuce hydroponically need to be proactive in protecting crops from aphid infestations because once a lettuce crop is infested and damage is noticeable, options for keeping aphid populations below plant-damaging levels are limited. **IG**

Dr. Raymond A. Cloyd is a professor and extension specialist in the Department of Entomology at Kansas State University in Manhattan, Kansas. He can be reached at (785) 532-4750 or rcloyd@ksu.edu.